AMENDMENTS TO THE CLAIMS

Please amend the claims to be as follows, where markings are included to show changes made.

1. (currently amended) A method of rapidly selecting a physical memory locality to accomplish efficient memory allocation in a multiprocessor system, the method comprising:
providing a data structure including sets of equidistant physical memory localities; and
~~determining~~ selecting a preferred physical memory locality using a pointer to a locality within said data structure,
wherein the pointer is rotated amongst localities within a current equidistant set so as to provide for round-robin type selection amongst those equidistant physical memory localities.

2. (original) The method of claim 1, further comprising:
receiving an initial locality request including an indication of a search policy; and
forming the data structure using physical memory localities within the system and using the search policy.

3. (original) The method of claim 2, wherein the physical memory localities include local memories at cells in the system.

4. (original) The method of claim 3, wherein the search policy comprises a "closest first" policy.

5. (original) The method of claim 3, wherein the physical memory localities further includes interleaved memory in the system.

6. (original) The method of claim 5, wherein the search policy comprises an "interleaved first" type of policy.

7. (currently amended) The method of claim 1, wherein the ~~determination~~ selection of the preferred locality is [[is]] performed using a get "best"/"next best" iteration procedure.

8. (canceled)

9. (original) The method of claim 1, wherein the determination of the preferred locality includes changing to a next equidistant set if there is no memory available in any locality of a current equidistant set.

10. (original) The method of claim 9, further comprising returning an indication that no locality is available if no locality within any of the equidistant sets has sufficient memory.

11. (currently amended) A multiprocessor computing system, the system comprising:
multiple symmetric multiprocessing (SMP) nodes;
multiple central processing units (CPUs) at each SMP node;
a memory control unit at each SMP node which is coupled to each CPU at that SMP node;
shared memory at each SMP node which is accessible by way of the memory control unit at that SMP node;
a switching system coupled to the memory control units so as to interconnect the multiple SMP nodes;
an operating system running on the CPUs;

a virtual memory (VM) fault handler within the operating system; and

a VM locality module within the operating system; and

a data structure including sets of equidistant physical memory localities,

wherein the VM locality module determines a preferred locality using a pointer to a locality within the data structure, and

wherein the pointer is rotated amongst physical memory localities within a current equidistant set so as to provide for round-robin type selection amongst those equidistant physical memory localities.

12. (canceled)

13. (currently amended) The system of ~~claim 12~~ claim 11, wherein the preferred locality is determined using a "closest first" search policy.

14. (original) The system of claim 13, wherein the data structure comprises a first set including a closest local memory locality and one or more other sets of equidistant localities.

15. (original) The system of claim 14, wherein the other sets include an interleaved memory locality.

16. (original) The system of claim 11, wherein the shared memory includes both local memory and interleaved memory.

17. (original) The system of claim 16, wherein the preferred locality is determined using an "interleaved first" search policy.

18. (original) The system of claim 17, wherein the data structure comprises a first set including an interleaved memory locality and a set including local memory localities.

19. (currently amended) A data structure for use in selecting a physical memory locality in a multiprocessor system, the data structure being configured in accordance with a search policy and comprising multiple sets of equidistant physical memory localities under the search policy, wherein a pointer is rotated amongst localities within a current equidistant set so as to provide for round-robin type selection amongst those equidistant physical memory localities.

20. (original) The data structure of claim 19, wherein the search policy comprises an "interleaved first" policy, and wherein a first set comprises an interleaved memory locality.

21. (original) The data structure of claim 19, wherein the search policy comprises an "closest first" policy, and wherein a first set comprises a most rapidly accessible memory locality.

22. (currently amended) ~~An operating system for a~~ A multiprocessor computing system configured so as to rapidly select physical memory localities to accomplish efficient memory allocation, the ~~operating~~ multiprocessor computing system comprising an operating system which includes:

a virtual memory manager configured for extending a memory space beyond limits of a physical address space;

a virtual memory locality module configured to rapidly select a physical memory locality in the system using a pointer to a data structure having sets of equidistant physical memory localities, wherein the pointer is rotated amongst physical memory localities within a current equidistant set so as to provide for round-robin type selection amongst those equidistant physical memory localities; and

a virtual memory fault handler configured to interrupt execution of the virtual memory manager when a page fault occurs and to utilize the virtual

memory locality module to determine the physical memory locality from which to allocate memory in response to the page fault.